

REMARKS/ARGUMENTS

Claims 1-22 are present in this application. By this Amendment, claims 1, 6, 10 and 19 have been amended. Reconsideration in view of the above amendments and the following remarks is respectfully requested.

Entry of this Amendment is proper under 37 C.F.R. §1.116 because the Amendment: (a) places the application in condition for allowance for the reasons discussed herein; (b) does not raise any new issues requiring further search and/or consideration (since the amendments amplify issues previously discussed throughout prosecution and raised by the Examiner in the previous Office Action; (c) does not present any additional claims without canceling the corresponding number of finally-rejected claims; and (d) places the application in better form for appeal, should an appeal be necessary. The Amendment was necessary and was not earlier presented because it is made in response to arguments raised in the final rejection. Entry of the Amendment is thus respectfully requested.

Claims 1-16, 19 and 22 were rejected under 35 U.S.C. §103(a) over Smith, Jr. '757 in view of Foley, MacDonald et al. or Backer et al. This rejection is respectfully traversed.

The Office Action contends that each and every feature defined in the noted claims is disclosed in the Smith patent with the exception of a pivotally coupled main boom. The secondary references are cited for the proposition that it would have been obvious to modify Smith to include a pivotally coupled main boom.

An important objective of the present invention is to control a tower nose pin path to avoid positions of the main and tower booms that previously effected maximum turning moment loads. As a consequence, the counterweight mass can be reduced, resulting in a lower weight vehicle that is less expensive to manufacture and transport via public roads. In an effort to

achieve this important objective, the invention defined in claims 1, 6, 10 and 19 controls the tower boom nose pin path based on an angle of the main boom. In a related context, claim 22 recites that the predetermined path of the tower boom nose pin is varied based on an angle of the main boom relative to gravity. In this context, although claims 1, 6, 10 and 19 have been amended to clarify this concept, these amendments do not in any manner raise a new issue requiring further consideration and/or search; indeed, claim 22, which was previously considered by the Examiner, defines similar but narrower subject matter, and assuming the Examiner conducted a search for this narrower feature of the invention, such search would have encompassed the broader feature defined in the claims amended herein.

Without conceding the Office Action's contention that it would have been obvious to incorporate a main boom into the Smith structure, none of the references of record discloses or remotely suggests controlling the tower boom nose pin path according to an angle of the main boom. Certainly, since Smith lacks such a main boom, Smith lacks any such teaching of this feature. The Foley, MacDonald and Backer patents merely disclose conventional main booms that are pivotally attached to a tower boom. In view of at least this distinction, Applicants respectfully submit that the rejection is misplaced.

As noted above, claim 22 includes related subject matter, reciting that the predetermined path of the tower boom nose pin is varied based on an angle of the main boom relative to gravity. Although this claim is included in this rejection, the Office Action does not reference a single teaching in any one of the four cited references that even remotely discloses or suggests this claimed feature of the invention. Presumably, this feature of the invention was overlooked and/or disregarded by the Examiner. Indeed, the Office Action recognizes that Smith lacks a main boom, and consequently, there is no teaching in the Smith patent that references controlling

a path of its boom based on an angle of a boom that does not exist in the Smith structure. Foley, MacDonald and Backer are cited merely for the proposition of a second boom pivoted to a first boom. These patents similarly lack any reference to controlling a tower boom nose pin path and additionally lack a path that varies based on an angle of the main boom relative to gravity as defined in claim 22.

In view of this oversight, Applicants respectfully submit that the Office Action has failed to set forth a *prima facie* case of obviousness, and Applicants respectfully submit that the finality of this Office Action is premature.

Independent claim 3 defines a manner of controlling the tower boom nose pin predetermined path such that the path comprises (1) a constant radius equal to a fully retracted length of the tower boom for tower boom angles less than a predetermined angle relative to gravity, and (2) a substantially straight line tangent to the constant radius for tower boom angles greater than the predetermined angle relative to gravity. At best, the Smith structure utilizes a boom path that defines a straight line along its entire stroke. Smith describes that this provides an advantage in that it allows a load to be elevated along a path that is close to a vertical line. See column 4, lines 7-9. Smith further provides that conventional booms swing the load in an arc (i.e., with a constant radius). The Smith patent thus does not suggest the claimed two-part nose pin path as defined in claim 3. In fact, since the Smith structure endeavors to raise its load in a vertical orientation, Smith teaches away from this subject matter. Additionally, Smith lacks any reference to any ability to monitor angles relative to gravity. Foley, MacDonald and Backer do not correct these deficiencies, and Applicants respectfully submit that the rejection of claim 3 is misplaced.

In this context, the Office Action provides that “[t]o prevent the extension of the tower boom until it reaches a predetermined angle as claimed would have been an obvious mechanical expediency.” Applicants respectfully traverse this assertion. Indeed, the Smith structure endeavors to keep the load at a constant distance from a wall or the like and thereby discloses a vertical path. The cited secondary patents are incapable of pivoting and telescoping simultaneously and independently and thus are also incapable of meeting this feature of the invention. Applicants respectfully submit that if this specifically claimed subject matter is merely “an obvious mechanical expediency,” the Patent Office would be able to find a prior art reference that even remotely discloses this feature of the invention.

For this reason also, Applicants respectfully submit that the Office Action fails to set forth a *prima facie* case of obviousness, and the finality of the Office Action is premature.

With regard to the dependent claims, Applicants submit that these claims are allowable at least by virtue of their dependency on an allowable independent claim. Additionally, claim 2 recites that the raising and lowering of the tower boom is controlled with a single control switch. In this context, the Office Action dismisses this feature of the invention providing that “[t]o use a single control switch to control the raising and lowering of his Tower boom, as is conventional, would have been an obvious mechanical expedient.” Applicants respectfully submit, however, that it is not conventional to use a single control switch for such tower control. Indeed, in the embodiment utilizing multiple cylinders, as is conventional, the Smith patent uses multiple switches. Indeed, if the use of a single control switch is “conventional” as contended in the Office Action, the Patent Office would be capable of locating a prior art reference that discloses this feature of the invention.

Claim 12 defines subject matter related to claim 3. Claims 8 and 16 recite that the step of controlling an angle of the main boom relative to the tower boom comprises maintaining the boom angle relative to gravity as measured at (1) the commencement of a tower lift control, or (2) the conclusion of main boom lift command when the main boom is active with a tower lift command. As discussed previously, these features of the invention are lacking in the references of record, and the Office Action in fact does not address these claimed features.

Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 3-5, 12-14, 17 and 20 are rejected under 35 U.S.C. §103(a) over Smith in view of Foley, MacDonald or Backer and Kishi. This rejection is respectfully traversed.

Initially, Applicants respectfully submit that the Kishi patent does not correct the deficiencies noted above with regard to Smith, Foley, MacDonald and Backer. Moreover, Kishi lacks any structure to effect control of a tower boom based on tower boom angles relative to gravity as defined in claim 3. Still further, the “signal grooves” in Kishi are arranged for only one path. The design of the invention uses sensors to quantify the actual angle of inclination relative to gravity (not the base of the machine) as well as the use of sensors to quantify the actual length of the boom so the precise path can be followed in a closed loop manner, regardless of the many variables that can cause the Kishi open loop device to wander off its intended movement. The Kishi device describes a vertical path relative to the base of the machine rather than the nose pin path defined in claim 3 being a constant radius to a predetermined angle and a straight line thereafter.

Applicants submit that dependent claims 12-14, 17 and 20 are allowable at least by virtue of their dependency on an allowable independent claim.

Reconsideration and withdrawal of the rejection are respectfully requested.

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Claims 18 and 21 were rejected under 35 U.S.C. §103(a) over Smith in view of Foley, MacDonald or Backer and Kishi and further in view of Rocke. The Rocke patent, however, does not correct the deficiencies noted above with regard to the cited references, and Applicants submit that these dependent claims are allowable at least by virtue of their dependency on an allowable independent claim. Withdrawal of the rejection is requested.

In view of the foregoing amendments and remarks, Applicants respectfully submit that the claims are patentable over the art of record and that the application is in condition for allowance. Should the Examiner believe that anything further is desirable in order to place the application in condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Prompt passage to issuance is earnestly solicited.

Respectfully submitted,

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